

HV shutdown unit - breakout box for EXOGAM (CAEN HV - 24 channels max)

Connections to the detectors;-

Connections are made to the detector warm-up monitor by miniature coax and 9-way D-type connectors. 400uA flows along this line when operation is normal. Under fault conditions this current is removed and the shutdown box detects this. This signal current is also fed through the Autofill monitor and all cables to this must be connected for correct operation of the breakout box. The unit is designed for use with detectors which have a positive current generated from +5V for normal operation. This is the signal supplied by the new segmented Clover detectors for Exogam. The older Ge detectors that are available for use in Exogam have a different arrangement for generating the 'detector good' current. These use a -24V supply which is fed through a 47k resistor within the detector when the detector is powered and no fail condition is detected. In the case of a detector warming up the voltage on the end of the resistor is lifted to +5V. This will remove the current and so a detector fail will occur and HV and autofill will be informed or shut down. To use these older types of detector it is necessary to invert the signal from the detector so that the negative current (gnd to -24V) is turned into a positive one (to simulate the +5V to ground of the new detectors). In order to do this a set of yellow 9-way plug to socket adapters are included with the unit. These are fitted between the 9-way D-type on the cable from the old type detector and the rear 9-way D-type on the shutdown unit. They must not be used with the new type of detectors with +5V current sources, these detectors are connected directly to the back panel.

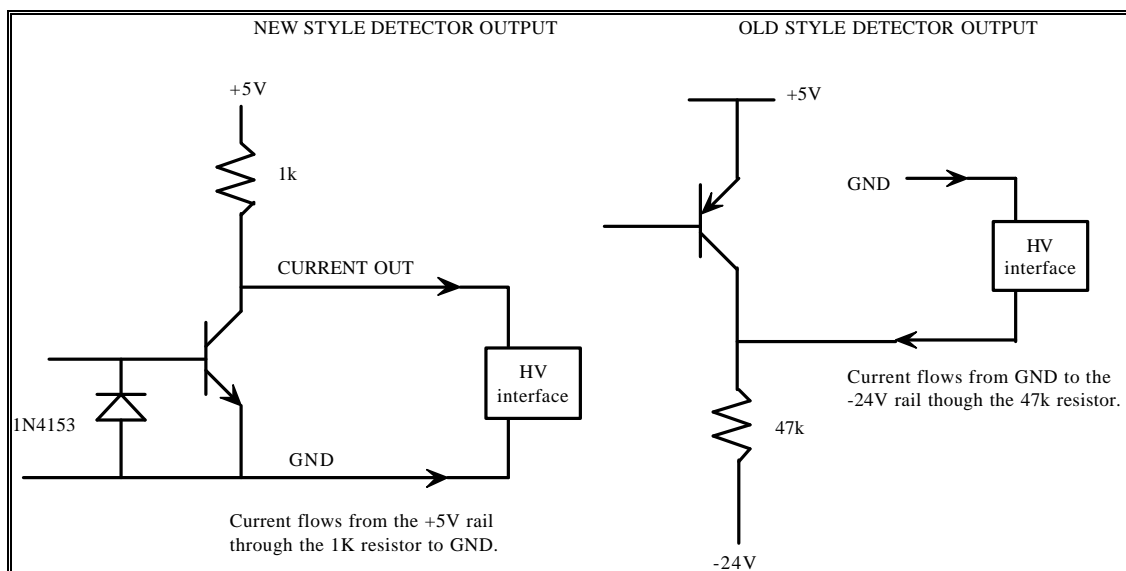


Figure 1 Detector shutdown circuits

Connection to the Autofill monitor;-

These are made through D-type 25-way connectors mounted on the rear of the box next to the associated 9-way D-types. The connectors are of a different gender to those on the front of the box in order to prevent errors in wiring. The 400uA current from the detector is fed into the Autofill monitor from the breakout box and is wired in series with the cards in the box. It is important that all required cards be inserted into the breakout box in order to complete the circuit. The connections for the D-types start at the right side (chan 1-6) of the back panel and go to the left (chan 7-12,13-18 etc). Channel 1 is the top right connector, channel 2 is beneath it, channel 3 at the bottom. channel 4 is the next top connector to the left along the panel, channel 5 is beneath this and channel 6 is at the bottom. This pattern repeats along the panel.

Connection to CAEN HV unit;-

This is made from the front of the unit (plug-in card side) using 25-way D-type connectors. Eight channels are driven from one card. The cards which plug into the front of the unit number from left to right the left hand card having channels 1-8 the next 9 to 16 etc. up to the 3rd card which has the last channel (24).

The card placed next to the power supply is the control and power monitor. This must be in place to operate the unit as it generates the backup power supply in the event of mains failure.

To ensure that the backup battery is fully charged the unit should be powered from the mains continuously, i.e. do not disconnect from the mains for long periods.

The control card has a 9-way D-type connector on the front panel and this may if wished be connected to a RS232 cable. This is optional and the unit can be set up in such a way as this is not required. When a trip situation occurs the unit may be set to either a) reset itself on the fault being cleared (default), or b) to latch the fault and require a clear via an RS232 input signal on the control card connector (see below). The unit is supplied to be self resetting after a fault condition (a).

The HT interface cards in positions 1-3 can be set in the two modes as follows;-

a) Link L2 set to short 2-3. Unlatched mode, where the HV shutdown signal is removed from the output when the detector fault clears. i.e. no external reset is required. (DEFAULT)

b) Link L2 set to short 1-2. Latched mode, where any fault being detected is latched by the channel on the card and HV power cannot be reapplied until a master reset has been done.

The reset is performed by sending a 'U' (capital U [hex55]) on the RS232 input. The sending equipment must be set to 9600 baud, 1 stop bit, No parity, 8 bits. (19200 baud is available on the card by moving jumper L1 to short pins 2-3). A single character is all that is required. CTS and RTS should be also connected from the host to the breakout unit and RTS is looped back in the breakout box to CTS when mains power is present. If mains power fails the loop breaks and the host can detect this and flag the failure in the control room for remedial action to be taken.

Pin connections for the RS232 port.

Pin 2 signal in
 Pin 7 ground
 Pin 4 to host CTS
 Pin 9 to host RTS

Pin connections for CAEN HV output 25-way D-type
(mounted on plug-in boards).

Channel	Signal Pin	Ground Pin
1	1	14
2	2	15
3	3	16
4	4	17
5	5	18
6	6	19
7	7	20
8	8	21

Pin connections for Autofill 25-way D-type
(mounted along side 9-way D-types on rear panel).

Channel	High Pin	Low Pin
1	1	14
2	2	15
3	3	16
4	4	17
5	5	18
6	6	19

Important.....

The link L3 is used to switch off the battery back up when in transit or when mains power is removed for any length of time. It **must** be installed in the ON position for normal battery back up operation of the breakout box and battery charging. The OFF end of the jumper is used for storing the jumper block to prevent loss in transit etc. Do not leave the unit unpowered for more than 24 hours with the battery backup switched in. With the battery switched off the unit should not be stored for longer than 2 months without recharging the battery by reconnecting the jumper and powering the unit on.

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